Comment #	Section	GRCA Comments – May 31, 2023 (Combined Agency Comments)	Wills' Response
3.		The hazard limits associated with the valley slope have not been established. GRCA requires that the top of bank is identified on site and that all development (including infrastructure, filling and grading) is appropriately setback from the top of bank or long term stable slope line (whichever is greater). In this instance, a minimum 6m setback is requested. Please revise the plan accordingly. It is recommended that a site visit be undertaken with GRCA staff to identify the top of bank.	See Draft Erosion Hazard Assessment Letter Report.
Comment #	**Section**	**Blu Metric Environmental Comments – June 25, 2023**	**Wills' Response**
1.	**Septic System Evaluation**	The Wills' evaluation indicates that the proposed 59 lots would result in unacceptable nitrate concentrations at the down gradient property boundary. BluMetric agrees that reducing the number of lots would allow the off-site nitrate discharge concentrations to be met. Wills' also suggests that advanced septic treatment system on each lot would allow for the proposed 59 lots and acceptable nitrate concentrations at the property boundary. Although this may be technically correct, the Municipality of Port Hope does not accept the use of these type of systems for individual lots. BluMetric agrees with the Municipality since continued effective use of the system is left to the responsibility of the individual lot owner. This is not always done by the owners and is also difficult for the Municipality to enforce.	The number of lots has been reduced to 40 residential lots as shown on the Preliminary Draft Plan prepared by D.G. Biddle & Associates Limited on February 21, 2024, included in Appendix A-2 of Wills' Hydrogeological Study Report. With 40 lots, the objective of 10.0 mg/L is met at the property boundary. There is no need for advanced treatment, as discussed in Section 6 of Wills Hydrogeological Study Report.
2.	**Septic System Evaluation**	The Wills' evaluation suggests utilizing the middle of the percolation time range. This may be appropriate for medium to well drained soils, but the middle portion of the site has a lower percolation rate (estimated by Wills at >50 min/cm). Installing septic systems in this type of soil should include the use of raised tile beds and a re-evaluation of minimum set back distances.	The recommendation has been added in Section 4.1 and in the Conclusions.
3.	**Septic System Evaluation**	The Wills' nitrate calculations assume a background nitrate value of 0.53 mg/L based on the average collected from BH107-22 and BH110-22. Both wells are completed at depths of 2.6 to 6.1 m below ground surface. BH107-22 was completed in both shallow sand and clayey silt and BH110-22 in sand. The overall depths of the wells may not be representative of shallow nitrate concentrations and the discharge depths for the septic systems. Wills disregarded the nitrate concentration of 4.36 mg/L from the shallow monitor MW22-08 since it was likely the result of agricultural activities over many years. BluMetric agrees with the statement and the concentration observed is in keeping with the average background nitrate concentration of 3.3 mg/L determined by Wills for the proposed development south of the site at Wienfield Subdivision. For that assessment, Wills used this concentration in their nitrate calculations, but it is not known why it was not used for the present proposed development. Elevated nitrate concentrations in the shallow groundwater cannot be dismissed because of the previous land use and no prediction has been provided of nitrate reduction in former agricultural fields without any further nitrate loading. The higher values observed on the two sites is very common throughout southern Ontario in agricultural settings. Further assessment of background nitrate concentrations and calculations will be required.	Additional water samples were collected from wells BH101-22, BH107-22 and BH110-22 in December 2023. The new assessment is based on the average of all six nitrate concentrations measured in wells MW22-08, BH101-22, BH107-22 and BH110-22 in October 2022 and December 2023 (i.e. 2.86 mg/l), including the one previously dismissed. Section 6 has been updated to include Wills' expectation with respect to nitrate levels after development.

4.	**Septic System Evaluation**	BluMetric agrees with Wills' conclusion that shallow groundwater depth could affect the design of septic systems on individual lots. Groundwater depths were only measured during the fall of 2021 and 2022. Additional groundwater monitoring is required to determine any seasonality in groundwater elevations.	Another round of groundwater level measurements in the three on-site monitor wells installed by Cambium Inc. is scheduled for spring 2024, as stated in Section 3.3.1.
5.	**Septic System Evaluation**	BluMetric agrees with the Wills' Environmental Impact Study that concludes that site grading and drainage features should be designed to ensure full function of the wetland feature at the north end of the property. Enhanced infiltration using soak away pits on lots adjacent to the wetlands may be adequate to achieve this, although this may not be sufficient given the surface water and shallow groundwater flow to the southwest and away from the wetlands. There should be an evaluation on whether the septic systems in the northwest corner of the property (Lots 56-59) will have any detrimental impacts to the functionality of the wetlands. Nitrate loadings entering the wetlands would be expected to be above 10 mg/L given short flow path between the leaching beds and the wetlands.	Lots 56-59 have been removed from the development. All developed areas have been moved outside of the 30 m setback from wetlands.
6.	**Water Supply Potential**	Wills' opines that the conditions at Wienfield Subdivision extend onto the 5868 property and they therefore conclude it is likely that adequate water supply can be met for individual lots. Further work is required to come to this conclusion. Wills' does, however, acknowledge that a full investigation on the 5868 property, including the drilling of water supply wells and aquifer testing, is required to ensure the required volumes and water quality for individual wells, and indicates that this is scheduled to be completed in 2023. We agree with this recommendation and the completion of this work is paramount before any draft plan approval for the development is provided. The 2023 investigation proposed by Wills should include drilling at least three water supply wells, preferably completed with the deeper overburden units. The wells must be screened as opposed to the open-bottomed wells as installed at the Wienfield Subdivision. Each well should be pumped for a minimum of 6 hours while measuring water levels in the other test wells, all available monitoring wells and private wells, if available. Normal geochemical testing during the test will be required.	The Hydrogeological Study Report has been updated to include the results of: - three pumping tests completed on three O. Reg. 903 water wells installed on the Property in 2023 - hydrogeological modelling based on the results of the pumping tests
7.	**Water Supply Potential**	Potential well interference between wells on the site as wells as adjacent private wells must be evaluated. Given the potentially 20 lots to the south, 19 lots to the west and up to 59 lots on the site, the potential cumulative interference effects must be assessed quantitatively using field data derived from pumping tests. The use of up to 88 wells in a relatively small area must be fully evaluated to ensure that all wells will always be able meet the peak water demands. There is not much data on vertical gradients or any potential connection between the deeper overburden aquifer and the shallow aquifer.	The impact on neighbouring pumping activities is addressed in the updated report on the basis of the hydrogeological modelling completed.
8.	**Water Supply Potential**	The calculations should also determine if the predicted cumulative impacts could draw the shallow groundwater that will be impacted with nitrates deeper in the overburden and affect long term deeper aquifer groundwater quality	The Hydrogeological Study Report has been updated to include the results of: - three pumping tests completed on three O. Reg. 903 water wells installed on the Property in 2023 - hydrogeological modelling based on the results of the pumping tests

Comment #	Section	Municipality of Port Hope Comments – May 25, 2022	Wills' Response
1.		- detailed hydrogeological and soil analysis report will be required. -The subject lands contains various natural heritage features such as significant woodlands, short and long term natural cover, unevaluated wetlands and physical constraints i.e. valleylands. The applicant would need to submit an Environment Impact Study, as per Section C20.3 of the OP and may need to submit slope stability study. Consultation should be done with GRCA.	See Wills' Environmental Impact Study, Hydrogeological Study Report and Draft Erosion Hazard Assessment Letter Report.
Comment #	**Section**	**Municipality of Port Hope Comments – May 10, 2023**	**Wills' Response**
1.		Submitted by the applicant was the Hydrogeological Study, by D.M. Wills Associates Limited, dated December 2022. In this report on page 12 the following was noted. "The Groundwater Impact Assessment concludes that a groundwater nitrate concentration of 10.7 mg/L will be achieved at the property boundary, which exceeds the ODWS and does not satisfy the requirements of D-5-4. The following mitigation options are provided: o If the number of lots is maintained at 59, Each proposed sewage disposal system would require advanced treatment to ensure that effluent leaving the system does not contain more than 37 mg/L nitrogen. o Alternatively, If the number of lots is reduced to 53, conventional sewage disposal systems (nitrate loading of 40 mg/L) without advanced treatment would result in acceptable nitrate concentrations at the property boundaries."	The number of lots has been reduced to 40 residential lots as shown on the Preliminary Draft Plan prepared by D.G. Biddle & Associates Limited on February 21, 2024, included in Appendix A-2 of Wills' Hydrogeological Study Report. With 40 lots, the objective of 10.0 mg/L is met at the property boundary, without any advanced treatment, as discussed in Section 6 of Wills Hydrogeological Study Report.